

# Dark Energy Camera Temple Review

WBS 1.2.8 and 1.2.9

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# Introduction

WBS 1.2.8 and 1.2.9

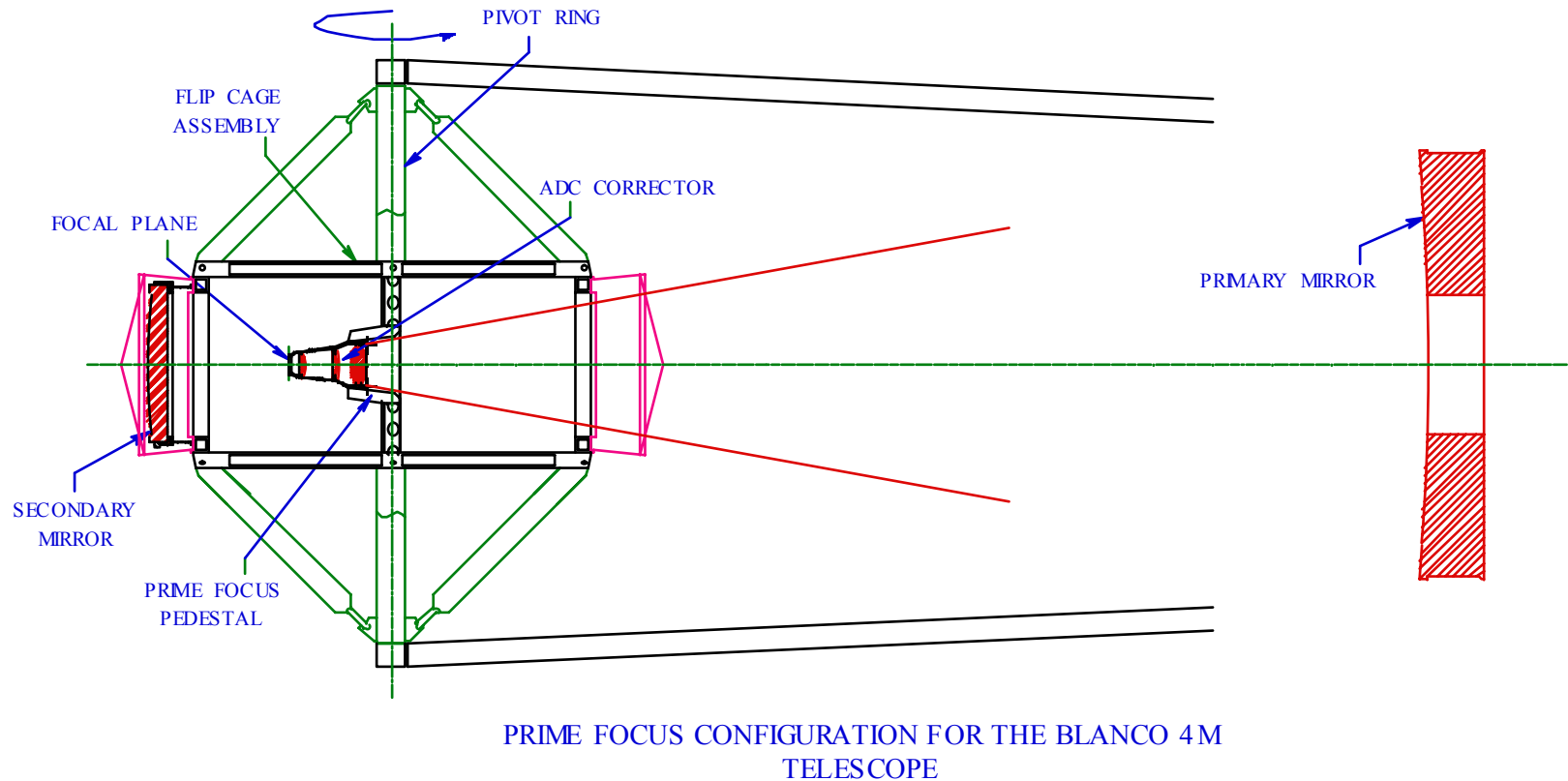
- Review prime focus cage design
- Telescope and site infrastructure
- Assembly and installation
- Costs

# Review prime focus cage and corrector design

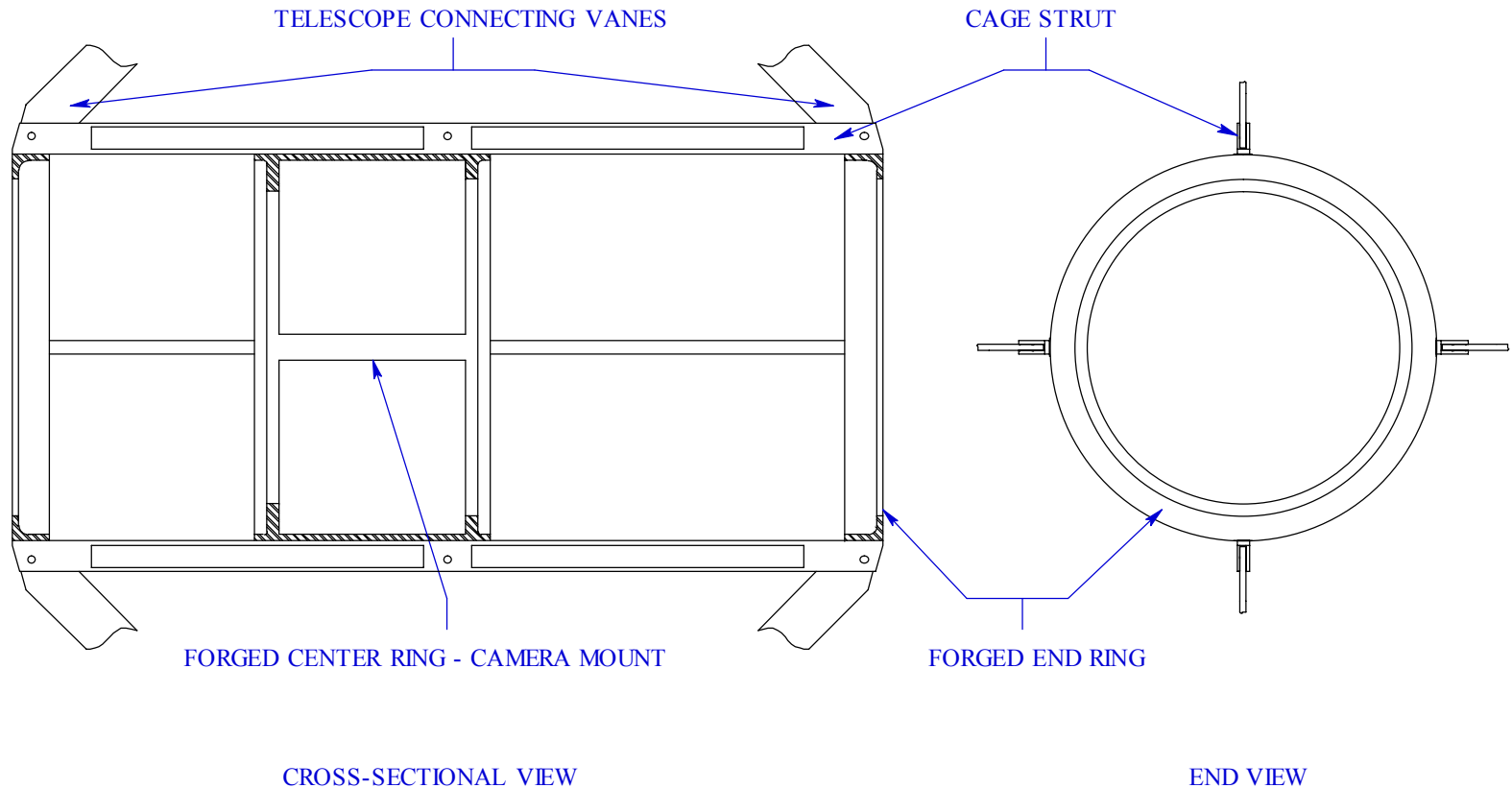
- Cage construction
- Corrector barrel
- Lens mounting
- Optical filter mechanism
- Shutter
- Adjustment system for camera/corrector alignment

# Cage construction

existing cage mounted to the CTIO 4m telescope

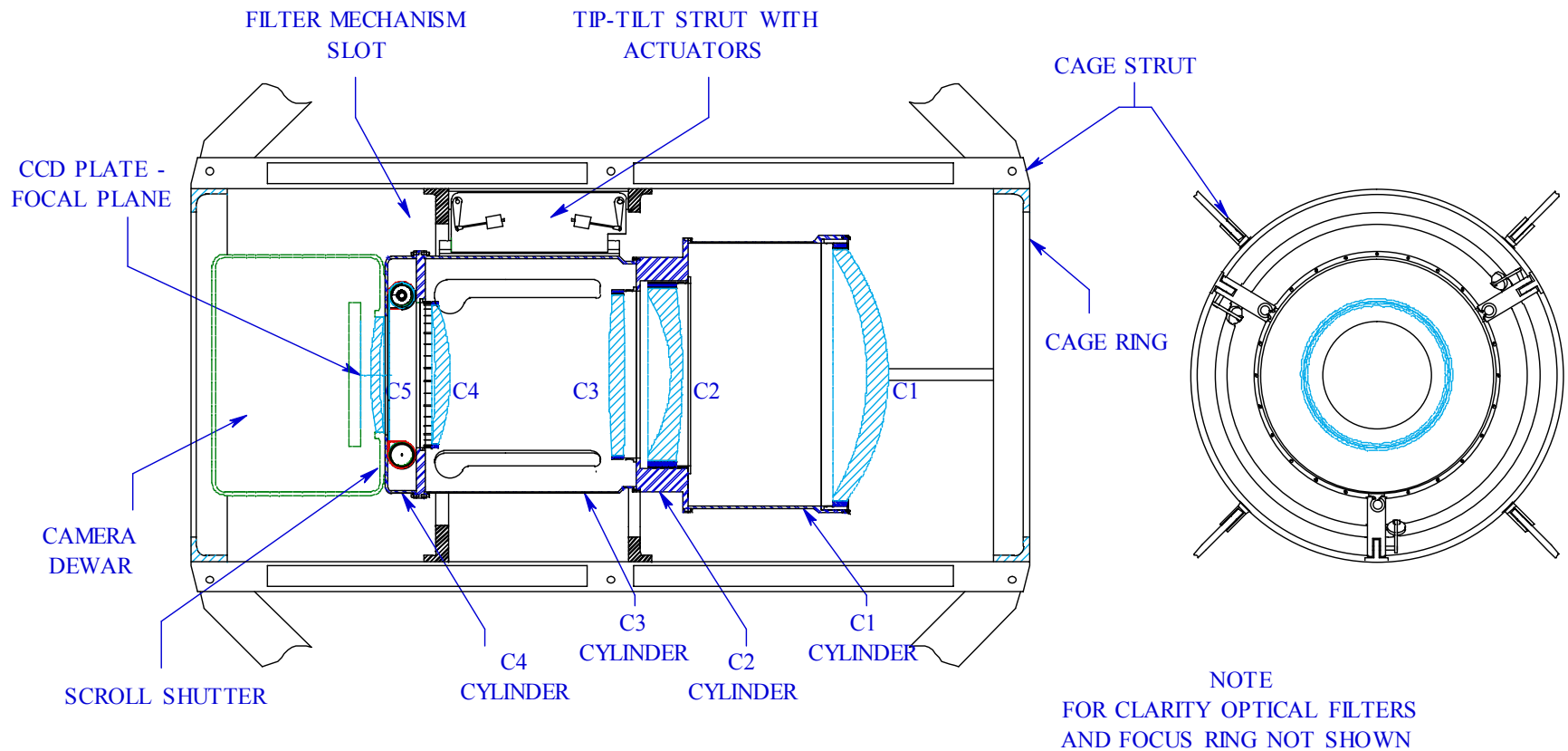


# DECam prime focus cage

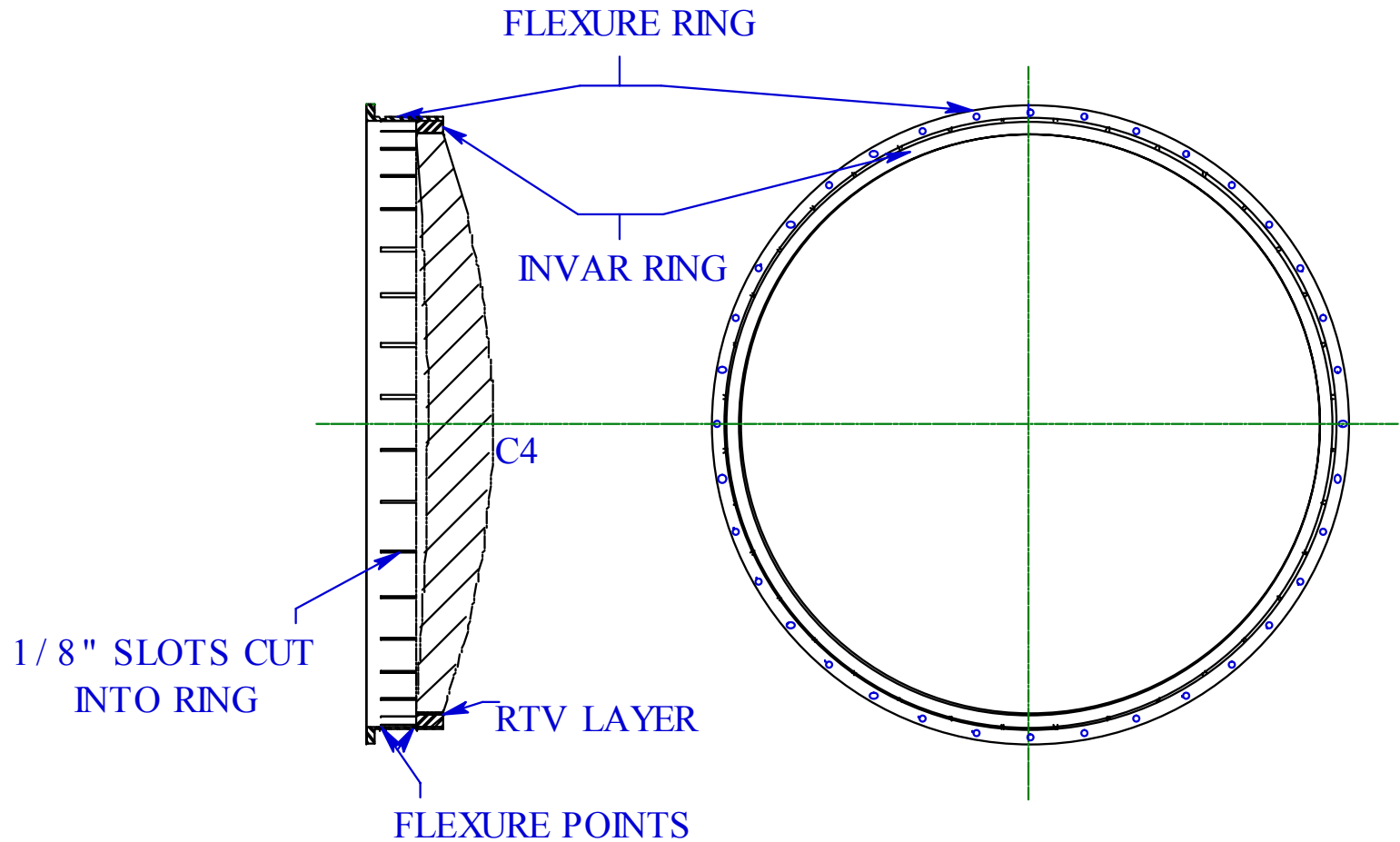


PRIME FOCUS CAGE WITHOUT CAMERA

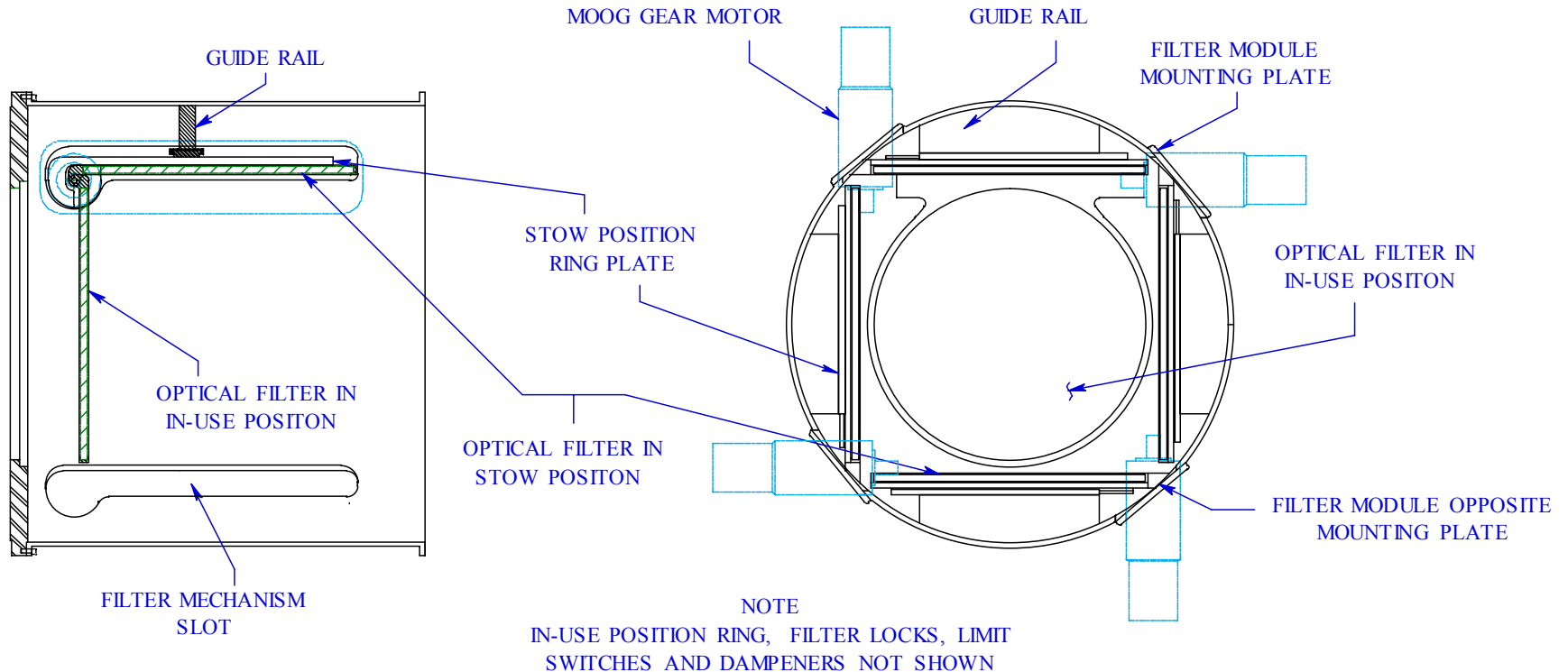
# Corrector barrel



# Lens mounting

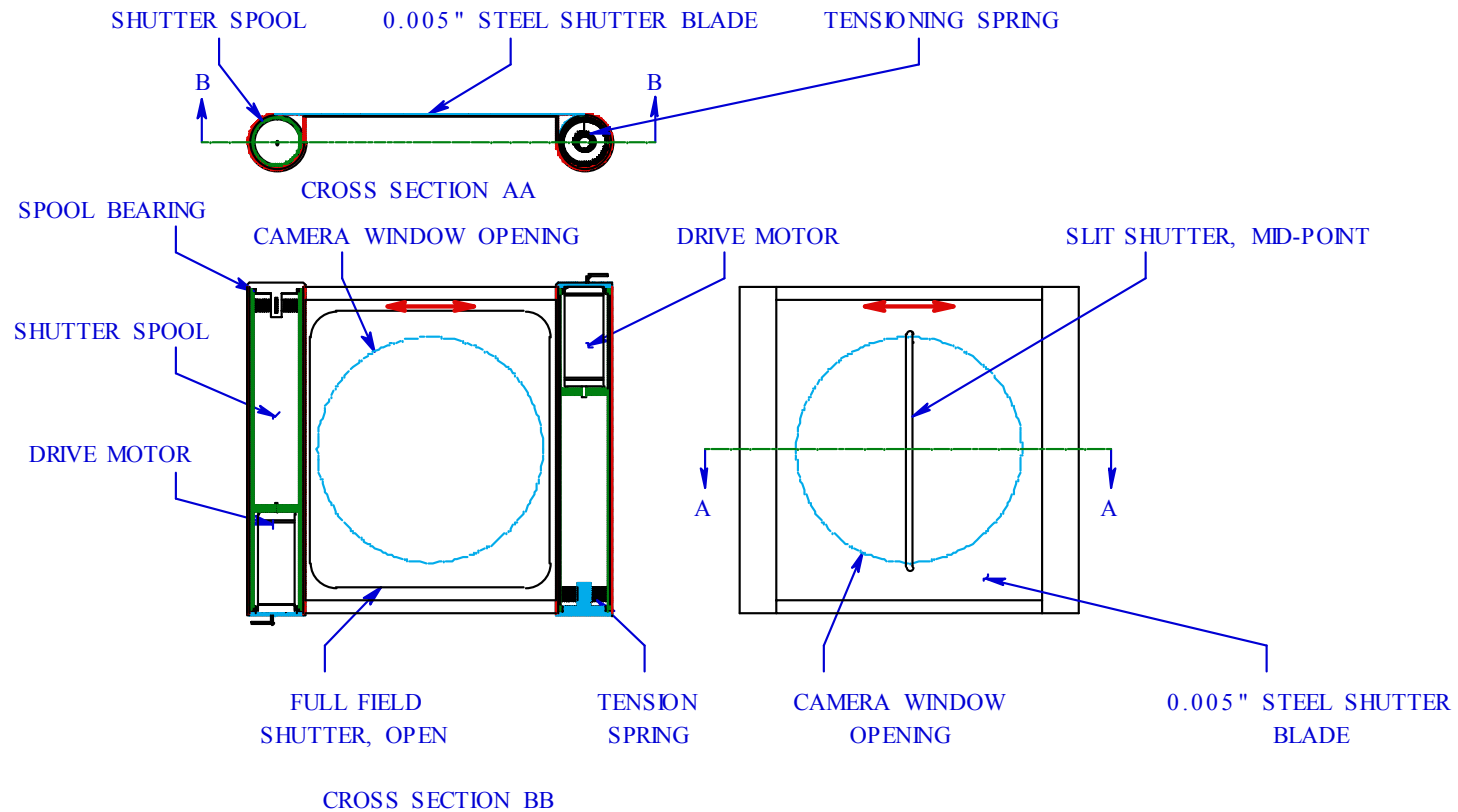


# Optical filter mechanism

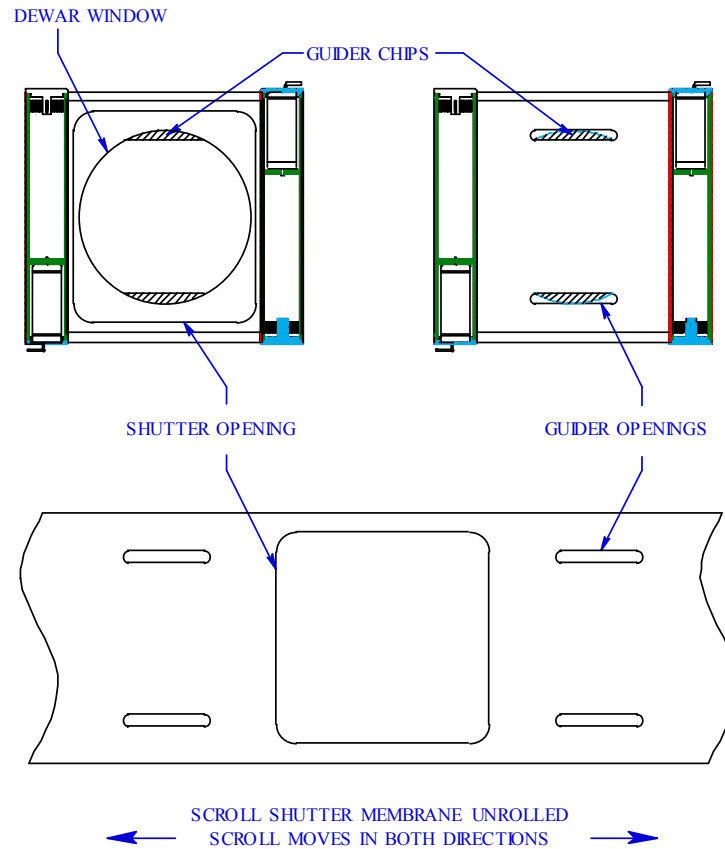




# Shutter



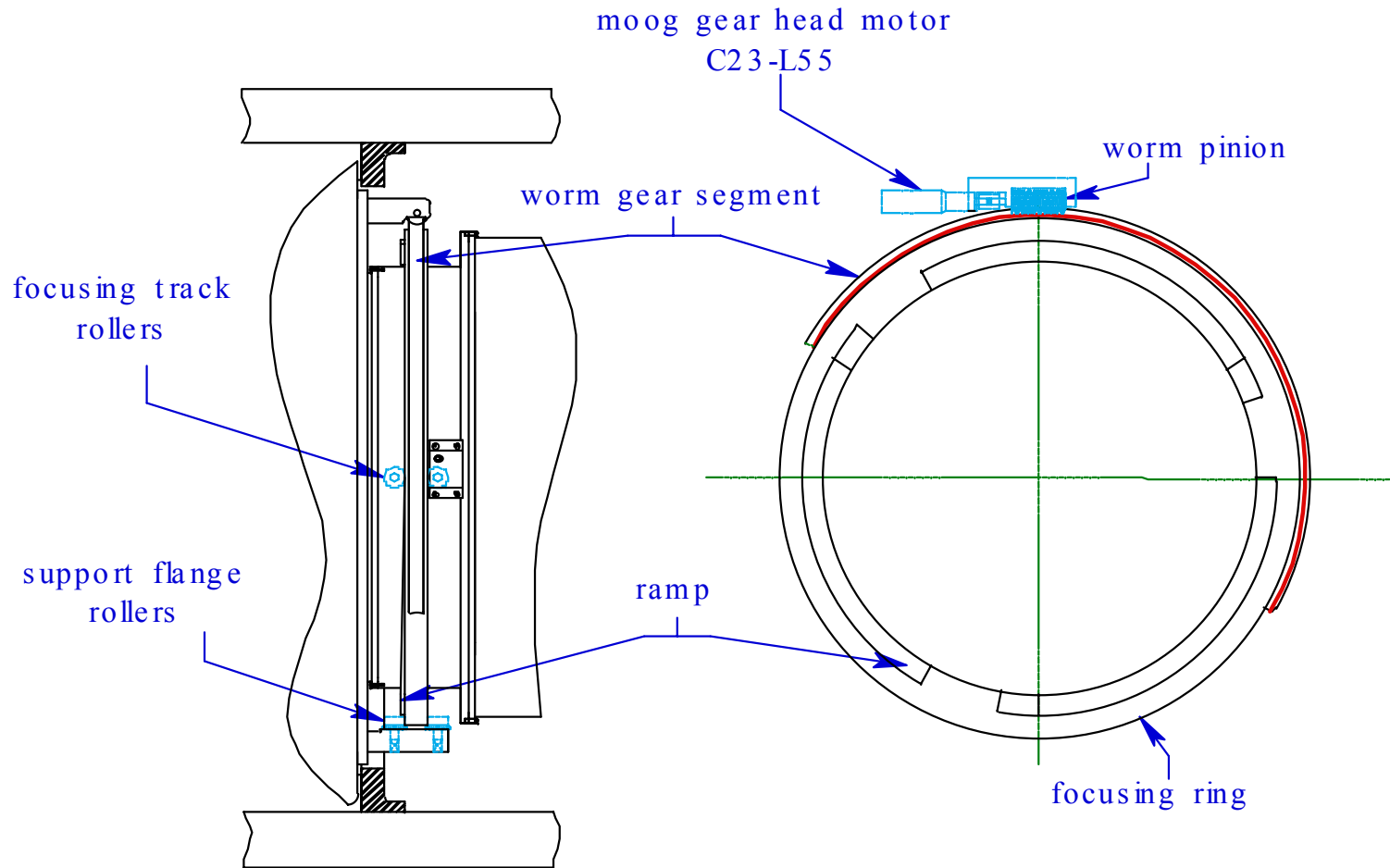
# UNROLLED SHUTTER SCROLL



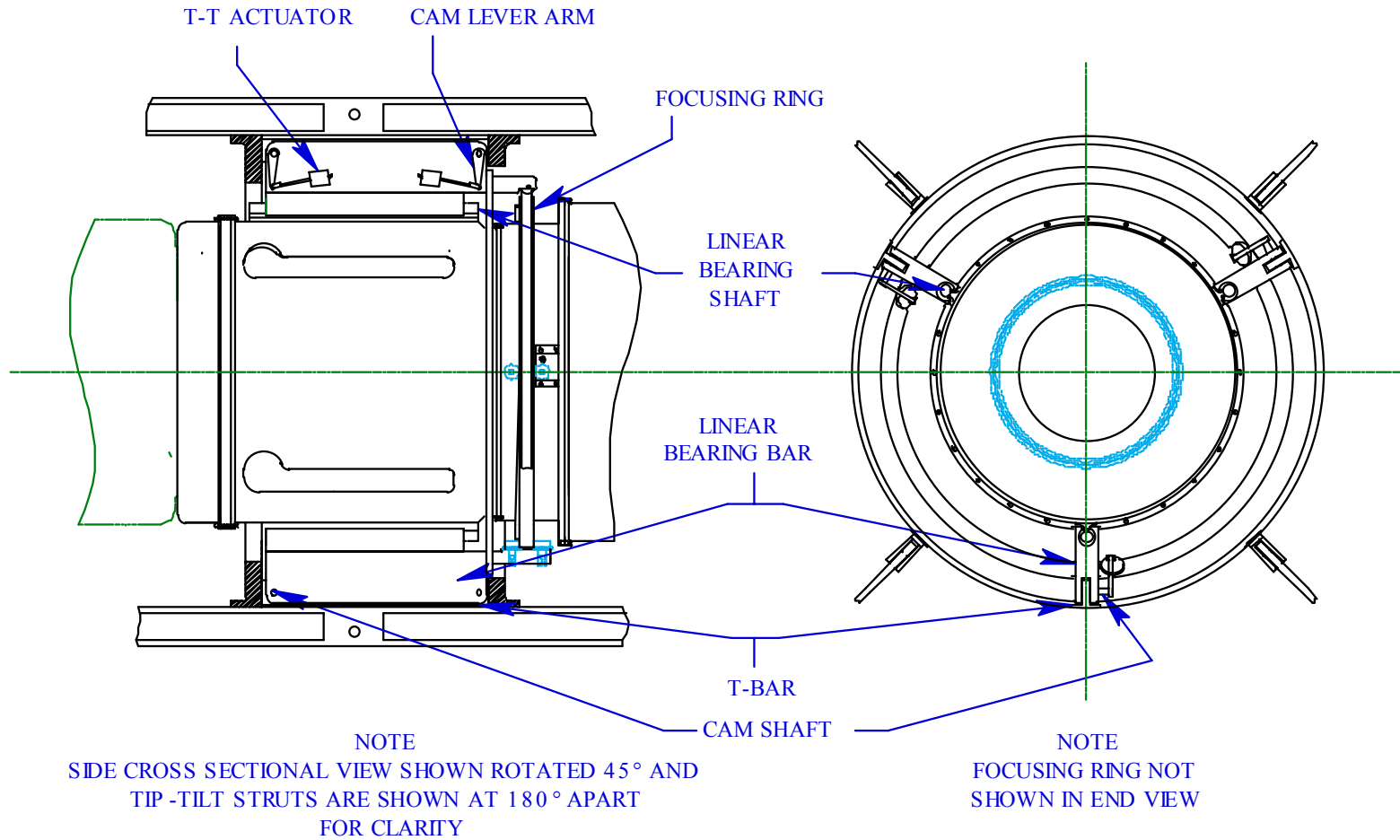
POSSIBLE SCROLL CONFIGURATION

# Adjustment system for camera/corrector alignment

## FOCUSING RING



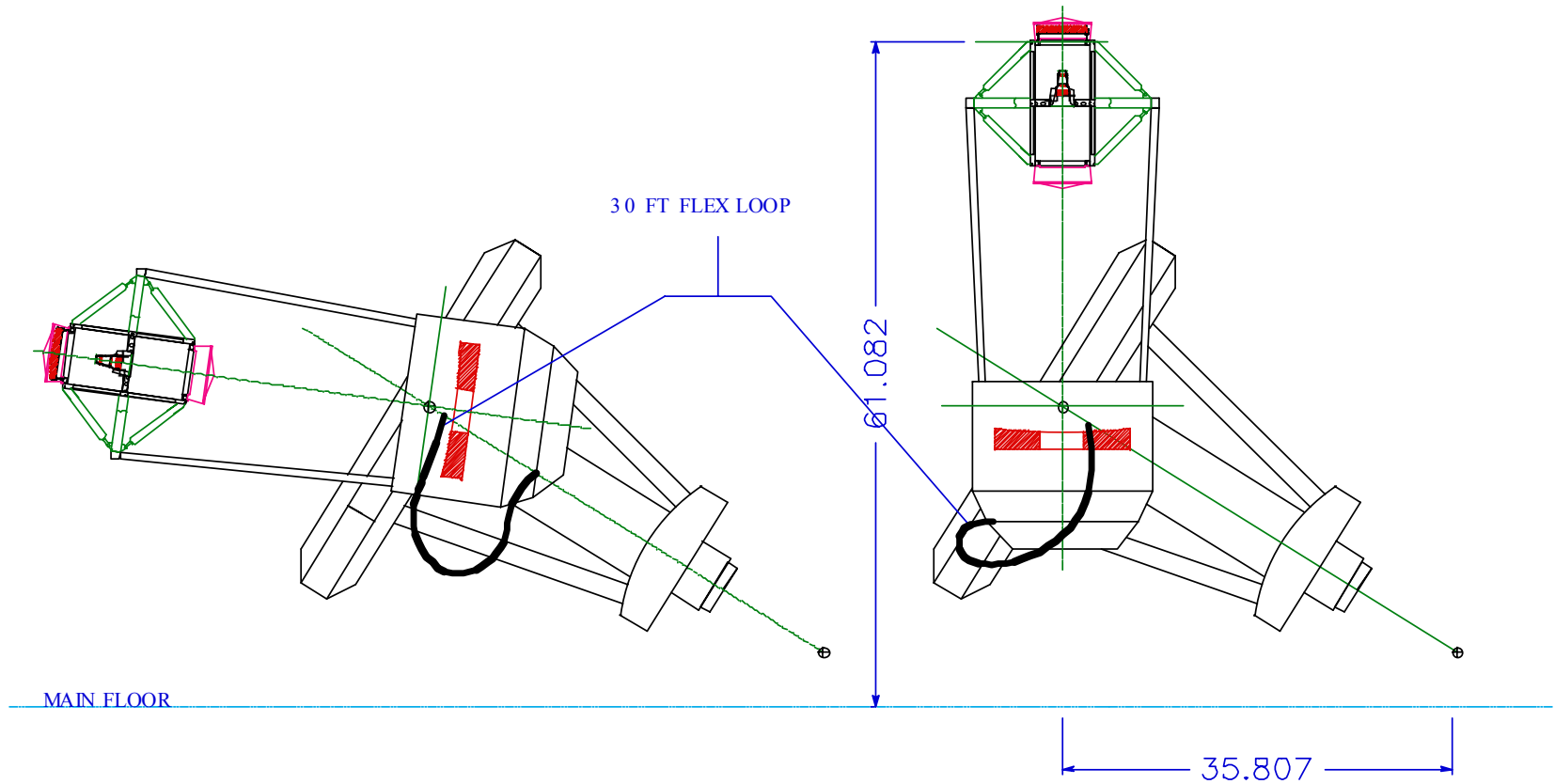
# LATERAL AND TIP-TILT MECHANISM



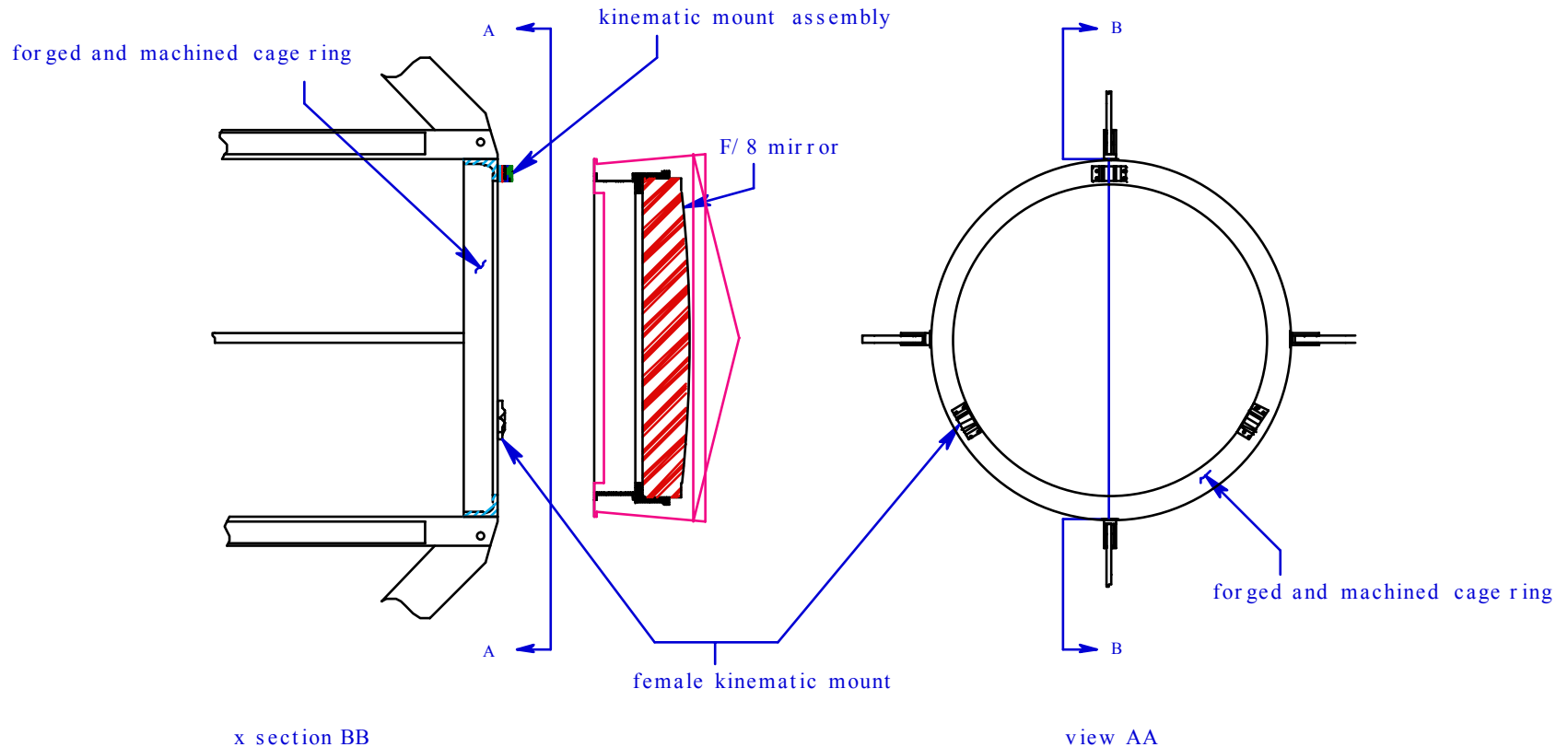
# Telescope and site infrastructure

- Coolant supply to electronic enclosures
- Power supply to prime focus cage
- f/8 handling system

# LN2 flex lines



# F/8 optics kinematic mount system



CONCEPTUAL DRAWING FOR F/ 8 MIRROR KINEMATIC  
MOUNTS SHOWN ON NEW DECamr CAGE

# Assembly and installation

- Assembly of camera/corrector and cage to be done at Fermi lab
- Initial corrector lens alignment to be preformed with alignment optics and test plates at Fermi Lab during and after assembly
- f/8 handling system fabrication at CTIO site
- Prime focus cage and camera/corrector to be shipped to CTIO for assembly onto 4m telescope
- Final alignment to telescope optical axis



# Costs

- Estimates for

– Cage	\$18200.00
– Lens glass	\$638,510.00
– Lens grinding and testing	\$1,000,000.00
– Lens coating	\$135,000.00
– Corrector barrel fabrication	\$151,720.00
– Optical filters and mechanisms	\$430,000.00
– Corrector axis adjustment system	\$28,025.00
– f/8 handling system	\$35.000.00

# SUMMATION

- Cage fabrication
- Lenses costs
- Corrector fabrication
- Need for f/8 optics handling system